

Letter to editor

Sacral arachnoid cyst presenting as chronic low back pain

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Sacral arachnoid cysts (also referred as Tarlov cysts, perineurial cysts, nerve root diverticula, meningeal cysts, sacral cysts and arachnoid pouches) are uncommon lesions and characterized by collections of cerebrospinal fluid (CSF) between the endoneurium and the perineurium of the nerve root sheath¹⁻⁷. A 45 year female presented with low back pain of two year duration increased over last 6 months with numbness of both lower limbs. Motor and sensory examination was normal. X-ray lumbosacral spine lateral view showed an expansile lesion involving the sacrum with gross thinning of the cortical bone (Figure-1).

MRI lumbosacral spine showed extensive widening of the sacral canal and a lesion that was hypointense on T1W images, hyperintense of T2W and FLAIR images, suggestive of CSF (Figure-2).

Based on the imaging findings a diagnosis of sacral arachnoid cyst was suspected. In view of incapacitating pain the patient was planned for the surgical intervention. The patient underwent S1-S3 laminectomies and partial excision of the cyst wall. There was an extradural CSF filled thin walled cyst extending S2 level onward. There was a connection between the spinal arachnoid space and the cyst. It was difficult to repair the defect as there was very fragile and thinned out dural membrane. Instead of repairing the defect it was widened and a large connection was made to abolish the ball-valve mechanism. Histological examination confirmed the diag-



Figure-1: X-ray lumbosacral spine showing ballooning of the sacrum with thinned out cortex (arrows)

nosis of arachnoid cyst (Figure-3). The patient recovered well after the surgery and her symptoms were resolved after the surgery.

Sacrum is the most common area to be involved by arachnoid cysts and these lesions are mostly asymptomatic, however coccygodynia or lower back pain can occurs in approximately 1% of the patients^{4,8,9}. Sacral arachnoid cysts develop at the distal limits of the dural sheath (at the point where the perineurium is the distal continuation of the pia/arachnoid) causing ballooning under pressure of the cerebrospinal fluid (CSF), probably the absence of constraint by

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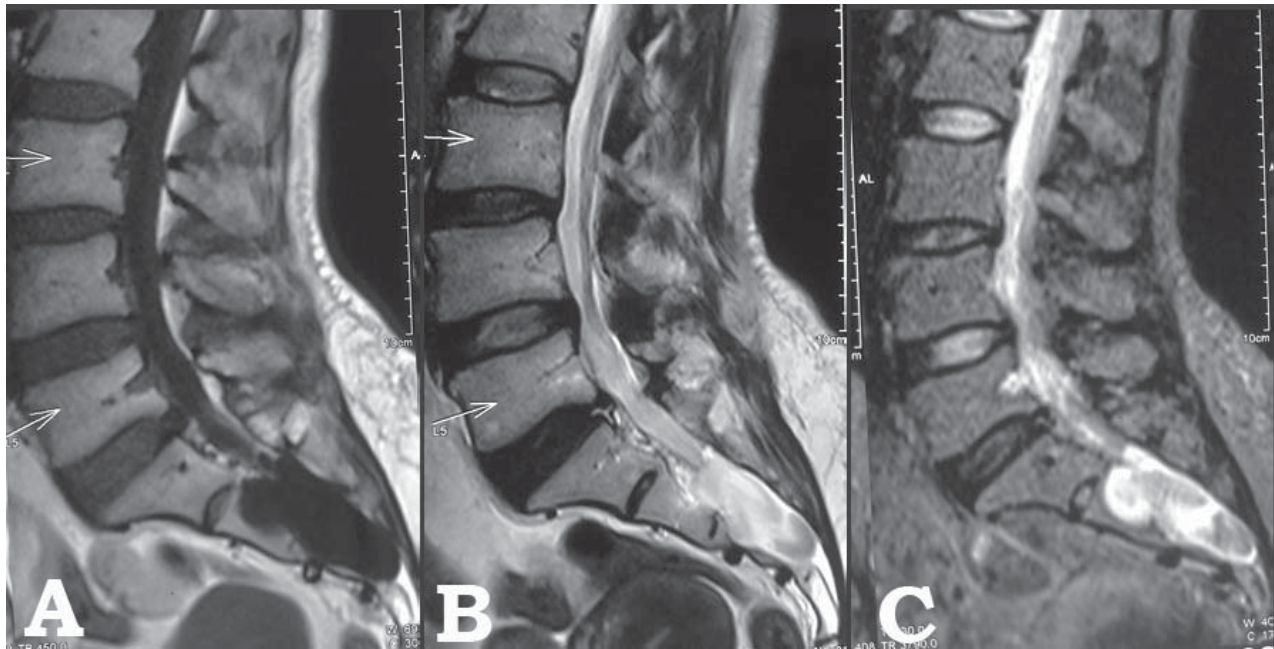


Figure-2: MR images of the lumbosacral spine showing a large lesion which was hypointense on T1W images (A), hyperintense on T2W (B) and FLAIR (C)

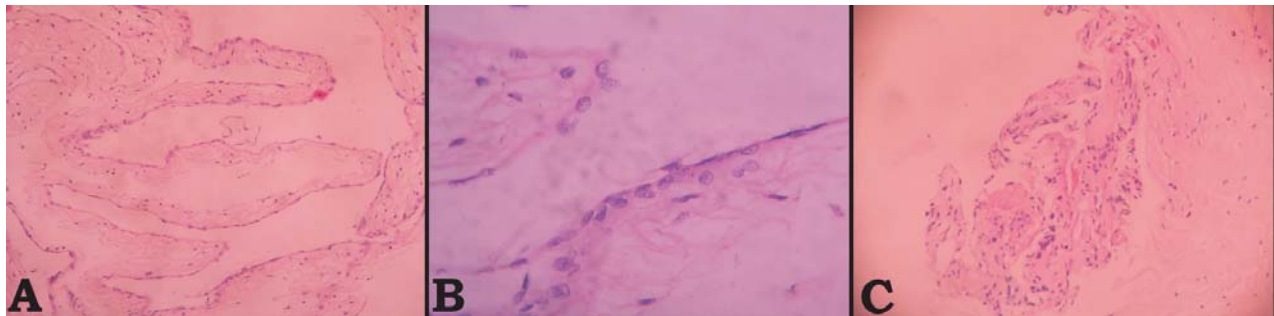


Figure-3: Histopathology images of the cyst wall showing (A) fibrocollagenous cyst wall lined by cuboidal epithelium (H&E,X100), (B) fibrocollagenous cyst wall lined by cuboidal epithelium (H&E,X400) and (C) arachnoid granulations (H&E,X100)

the proximally-overlying dura mater^{4,10}. Further the constricted neck of the fluid-filled balloon like structure creates a one way “ball-valve” phenomenon that allows CSF to enter, but not to leave readily resulting in expansion of the cyst^{4,7,10-12}. Arachnoid cysts located in the sacrum behave like mass lesions of the sacrum causing symptoms from compression or deformation of the exiting sacral nerve roots⁷. These symptoms can be correlated with changes of volume of CSF changes in response to postural and positional changes (from supine to sitting, or Valsalva maneuvers i.e. coughing, sneezing etc)^{4,10,13-17}. Patients with large lesions can present with intractable pain and sensory/motor deficits^{3,5,16} the pain can be aggravated by stand-

ing, walking and or straining³. Although x-ray can reveal the bony erosion¹⁸ but the MRI is the investigation of choice to get the better details in a case of suspected sacral arachnoid cyst^{3,7,17,19-21}. MRI will also help to differentiate the arachnoid cysts from other common causes of low back pain including lumbar disc herniations^{3,5,22,23}. In majority of the patients with smaller and asymptomatic lesions a conservative approach is recommended²⁴⁻²⁶. Surgery is recommended in patients who have larger lesions with intractable pain and/or neurological deficits^{1,3,7,16,25,26}. In selected group of patients where the defect correlates with the location of the cyst outcome is favourable following surgery^{3, 27}.

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